

- **Unequal distribution of land and water:** The oceans in the northern hemisphere receive more heat due to their contact with larger extent of land than the oceans in the southern hemisphere.
- **Prevailing winds:** The winds blowing from the land towards the oceans drag warm water away from the coast resulting in upwelling of cold water from below. This results in the longitudinal variation in the temperature. The onshore winds have a reverse effect.
- **Ocean currents:** Warm ocean currents raise the temperature in cold areas while cold ocean currents decrease the temperature in warm ocean areas. For example, the Gulf stream (warm current) raises the temperature near the eastern coast of North America and the west coast of Europe while the Labrador current (cold current) lowers the temperature near the north-east coast of North America.

The mentioned factors influence the temperature of the ocean currents locally. Also, the enclosed seas in the low latitudes record relatively higher temperature than the open seas; whereas the enclosed seas in the higher latitudes have lower temperature than the open seas.

5. ***Highlighting the characteristic features of equatorial vegetation, explain why these regions remain largely underdeveloped.***

Approach:

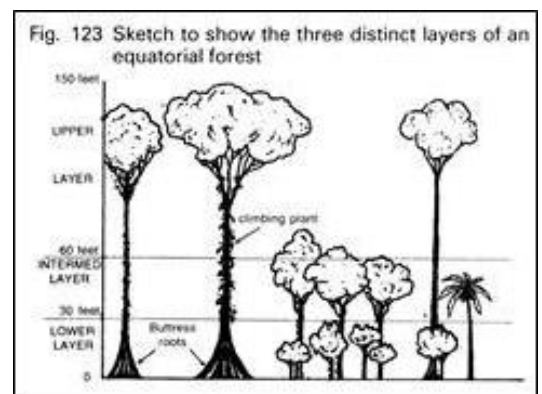
- Briefly state the climatic factors that influence growth of vegetation in the equatorial region.
- Highlight the characteristic features of equatorial vegetation.
- Discuss the factors that affect the development of the region.

Answer:

High temperature and abundant rainfall throughout the year in the equatorial regions (between 5° and 10° north and south of the Equator) support a **luxuriant** type of vegetation i.e. the equatorial rain forests.

The characteristic features of the equatorial vegetation are:

- **Diversity of vegetation:** The equatorial vegetation comprises a multitude of **evergreen trees** (e.g. mahogany, ebony), small palm trees, climbers (like lianas), epiphytic and parasitic plants. Under the trees, a wide variety of ferns, orchids and lalang also grow.
- **A distinct layered arrangement:** All plants struggle upwards for sunlight resulting in a distinct layered arrangement. Lack of sunlight makes undergrowth less dense.
- **Multiple species:** The trees of the equatorial rain forests are not found in pure stands of a single species. For instance, in Malaysia, as many as 200 species of trees can be found in an acre of forest.
- **Forest clearings:** Many parts of the virgin tropical rain forests have been cleared either for lumbering or shifting cultivation. When these are left abandoned, less luxuriant, secondary forests spring up, which are characterized by short trees and very dense undergrowth.



The equatorial regions are sparsely populated. Mostly primitive groups live as hunters and collectors and the more advanced ones practice shifting cultivation. **Despite having abundant natural resources, the equatorial regions remain underdeveloped due to the following factors:**

- **Equatorial climate and health:** Under the conditions of excessive heat and high humidity, people are subjected to serious physical and mental stress, which reduces their capacity to work. Also, people in these areas are susceptible to various diseases like malaria, yellow fever etc., which hampers their productivity.